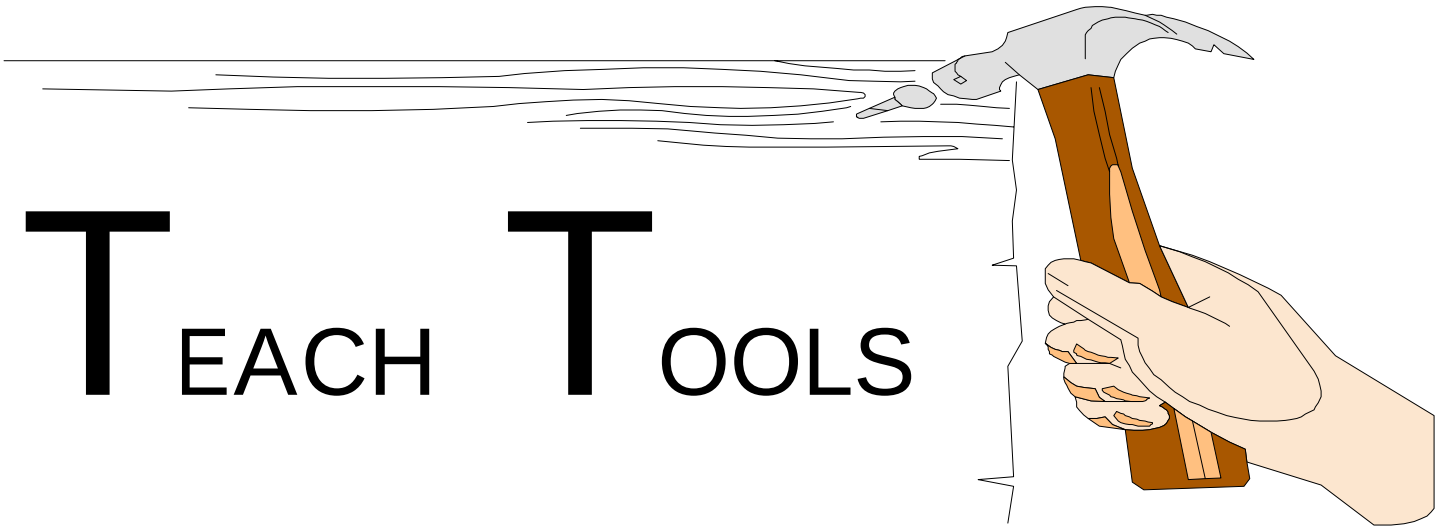


TEACH TOOLS

May 1998

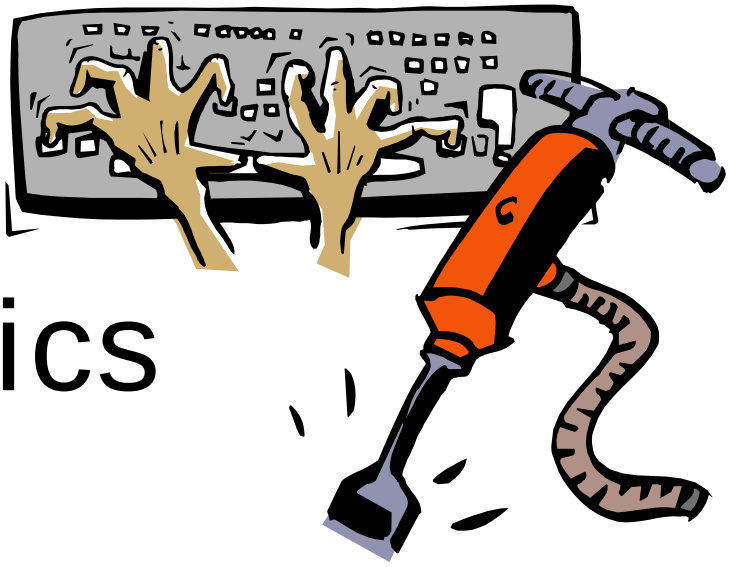
A guide to assist in training employees.

#15 - Personal Ergonomics

provided by:

The Kansas Municipal Insurance Trust

Personal Ergonomics



Objectives –

To explain what ergonomics is, the physical problems associated with poor ergonomics, and some steps workers can take to improve the ergonomics of their jobs. The result should be increased attention to ergonomic issues, early reports of problems, and greater efforts to perform tasks in ways that prevent injuries.

Suggested Materials to Have on Hand –

- Ergonomically designed tools

Note: Try to conduct this meeting at a workstation so you can demonstrate ergonomically correct, and incorrect, movements and positions.

Introduction/Overview –

There's been a lot of talk in recent years about something called ergonomics. Ergonomics is the study of the relationship between people and their work environment and it's very important to your health and safety. Good ergonomics adapt the job to fit the person rather than forcing the person to fit the job. An ergonomic workplace designs tasks and tools to fit individual capabilities and limitations so people can do their jobs without being injured.

Ergonomics has emerged as a hot issue because it shows the link between certain types of injuries and the way people perform their jobs. It is now realized that the body can only stay in awkward or unnatural positions for so long without paying a price.

The study of ergonomics, both in general and in terms of specific tasks and motions, has helped to identify what types of positions and movements can cause physical pain and injury as well as ways to prevent these problems.

Today, we're going to talk about ergonomics and learn more about how to avoid the poor ergonomics that put our bodies at risk. I hope you'll take this discussion very seriously. After all, ergonomics affects everyone personally. You're the ones who get aches and pains when tasks or tools have poor ergonomic design.

In addition, you are the only one who knows when you are experiencing pain and strain. And you're the one who's best able to determine what tasks, tools, and positions cause those symptoms. By being alert to problems, you help your supervisor identify injury causes, and solutions. That means you play an essential role in helping your city create a workplace in which you can work productively and comfortably.

General Hazards –

Poor ergonomics can lead to a number of serious physical problems. Often, employees brush off the symptoms that could help them identify problems in an early stage. That's the worst possible thing to do. With the types of physical problems we're discussing, it's important to deal with them as early as possible. If you wait until the pain is too much to bear, you may already have sustained permanent damage.

Probably the most talked-about physical problem resulting from poor ergonomics is cumulative trauma disorders (CTDs). CTDs are the fastest-growing occupational illness. CTDs develop over long periods of time. They're painful, sometimes even crippling, conditions that affect nerves, tendons, tendon sheaths, and muscles, especially in the arms, hands, and wrists.

CTDs are sometimes called repetitive motion syndrome, because repetitive motions are one common cause of the problem. Other causes include forceful exertion, vibration, and awkward positions or movements. The longer you expose your body to any of these situations, the more likely you are to develop a painful problem. One of the most common CTDs is carpal tunnel syndrome. The carpal tunnel is a passageway in the wrist. When the nerve that runs through that tunnel gets pinched, it can cause tingling, numbness, and pain in the hand, wrist, and even the arm. It can also reduce the strength and mobility of your hand and could, in the worst cases, lead to permanent nerve damage and even partial paralysis.

Other CTDs primarily affect the tendons, especially at or near the joints. One common problem is tendonitis, an inflammation that results from using the wrist or shoulder too much or in ways that they're not meant to go. If the condition is bad enough, the tendon fibers may even fray or tear.

The longer CTDs are ignored, the worse they get. In addition, if you let them go long enough, they may not be able to be "cured." Failing to take early action may force you to live with the pain and with limited use of your hand or arm forever. So pay attention to how your arm, neck, shoulder, hand, wrist, and fingers feel. Let your supervisor know immediately if you experience:

- Pain or achiness
- Numbness or tingling
- Stiffness
- Burning
- Swelling
- Weakness

Another type of ergonomic problem relates to vibration. Repeated, prolonged exposure to vibration may cause Raynaud's syndrome, or white finger. That means the skin and muscles aren't getting enough oxygen from the blood.

It may take months or even years for your fingers and hands to feel the effects of working with vibrating tools. Once the symptoms get really bad, it can be too late. In the worst cases, the tissue in the fingers can or you might lose the use of your hand.

So if you work with pneumatic tools, grinders, chain saws, or other tools that vibrate, you have to be very alert. If you work with these tools when it's cold or if you smoke, you're particularly at risk. Some symptoms to watch out for include:

- Tingling
- Numbness
- Pain
- Fingers turning white and losing feeling
- Loss of finger dexterity

Identifying Hazards–

As I mentioned before, the study of ergonomics has identified a number of tasks and positions that are most likely to lead to cumulative trauma disorders and other physical problems.
Risk factors for cumulative trauma disorders of the arm and hand include:

- Repetitive activities (making the same motion) over and over. The longer you repeat the same movement, the greater the risk.
- Forceful exertions, particularly with the hands. The combination of repetitive motion and force, such as pushing on a tool over and over, is a particular risk.
- Staying in the same position, whether sitting or standing, for an extended time.
- Awkward body postures, such as reaching above your shoulders or behind your back or twisting your wrists to perform tasks.
- Continued physical contact between hands or arms and a work surface or surface edge.
- Excessive power tool vibration.
- Hand tools that either don't fit the job or don't fit the hand.

Poor ergonomics can also injure the back. Some of the factors that raise the risks of back injury include:

- Bending continually from the waist
- Lifting from below the knees or above the shoulders
- Twisting at the waist, especially while lifting
- Lifting or moving objects that are too heavy or awkward
- Sitting for long periods of time, especially if you have poor posture

In general, poor ergonomics means forcing your body into unnatural movements and positions. When you do

that, your body uses pain, achiness, numbness, etc. to tell you there's a problem. It's crucial that you be alert to those symptoms. Because if you just keep doing what you're doing, your body will finally send signals so strong that you can't ignore them, and you may have to live with the results for the rest of your life.

Protection against Hazards –

In its ergonomic guidelines for meat packers, OSHA explains that there are four parts to a good ergonomics program:

- Worksite analysis
- Hazard prevention and control
- Medical management
- Training and education

By including training and education, OSHA is emphasizing that good ergonomics is everyone's responsibility. It's up to the employer to provide you with information and guidance on how to avoid risk. Only you can use that information to do your job the proper way.

You also play a key role in both worksite analysis and hazard prevention and control. Your employer can't analyze the work area and its ergonomics without your input and cooperation. Your employer may not even know that something could be a problem unless you say something. While different equipment can reduce some ergonomic stresses, many of the steps that can be taken to prevent injuries require you to change the way you do things in order to give your body a rest.

Engineering and Work Practice Controls –

When it comes to preventing and controlling hazards, OSHA recommends that employers look first at engineering controls that can help improve the way the job fits the person, rather than forcing the person to fit the job. One type of engineering control might be to modify the design of a workstation, for instance, moving the work surface to a height that's more comfortable for the individual worker. It's also possible to redesign the work method. You could, for example, put handles on boxes to make them easier to lift.

Engineering controls can also mean redesigning tools. One recommendation is to provide tools with a selection of handle sizes so that each individual, of any size, right- or left-handed, can find one that's comfortable to hold and use.

When engineering controls aren't enough, employers can try to ease the strain with work practice or administrative controls. That might mean scheduling more rest pauses for someone who works with a vibrating tool, rotating tasks so the worker is not constantly in the same position using the same muscles, or using mechanical equipment for a task rather than doing it by hand.

Safety Procedures –

There are things you can do to improve the ergonomics of your work and reduce the chance of injury. As you've gathered, the positions you work in and the movements you make are a key part of ergonomics. And these are things over which you have control.

First, look at how your workstation is organized. Do you have to reach more than 20 inches to get to tools or materials you need? If so, try to rearrange your workstation to bring those things closer.

Bending and twisting are also problems. For most people, a comfortable work surface is at about waist height. A work surface that's more than six inches below your waist is probably not good ergonomics.

If you can't make these changes yourself, talk to your supervisor. He or she will figure out a way to make your workstation more comfortable. Here are some other things you can do to reduce the risk of injuries caused by poor ergonomics:

- Keep your elbows down on the work surface instead of leaning on the elbows.
- Work with your palms down.
- Work with your wrists straight, not bent.
- Shift positions every so often; don't sit or stand for too long at a stretch.
- Perform tasks with two hands rather than one when possible.
- Grip objects with your whole hand and your fingers, a power grip, in order to distribute the force over a larger area of your hand.
- Try to avoid applying pressure to a tool with the center of your palm; that spot is much weaker than the parts of the hand padded with more muscle.

Tool Use and Selection –

Tools are another important part of ergonomics. First and foremost, select a tool that fits the job. If a tool is too small or not really designed for your purpose, you're going to be forcing the tool, and yourself, into a bad position. It's also a good idea to use a power tool rather than a hand tool when possible. Another suggestion is to use the lightest available tool for the job.

Other ergonomically desirable things to look for in tools include:

- Padded handles
- Textured grips, rather than grips with precut finger-hold grooves
- Triggers that are operated by more than one finger
- Tools that can be supported by two hands or an overhead suspension system

Saving Your Back –

When it comes to avoiding back problems, the most important thing is to lift properly, letting your knees rather

than your back do the work. The details of back safety, including proper lifting, are important enough for their own Teach Tool (January 1998), but in general, remember to:

- Avoid lifting; whenever possible, use material handling systems.
- Don't try to lift objects that are too heavy for you or whose size and shape are too awkward to allow a good grip.
- Don't twist while lifting or carrying a load, that's one of the fastest routes to back injury.

Vibration-related injuries can be permanently crippling if you don't catch them early. To minimize vibration and its negative physical effects:

- Operate tools at the lowest speed possible without lengthening the time it takes to do the job.
- Keep tools well maintained.
- Hold tools as loosely as safety permits.
- Wear gloves designed to protect against vibration.
- Use offset or spring-loaded handles or shock-absorbing exhaust mechanisms to reduce vibration.
- Use mechanical aids rather than your hands to grasp and hold pieces.
- Avoid bending your wrists or placing your hands and arms in awkward positions.
- Keep your body, especially your hands, warm.
- Try to alternate tasks so you don't spend all day operating a vibrating tool.

Wrap-Up –

Today, you've learned about some of the most common ergonomic problems, their causes, and some actions you can take to reduce the risk of injury. As you know, ergonomics seeks ways to make the job fit the person, rather than the other way around. That means it is, by definition, a very individualized approach to designing tools, tasks, and work areas.

Each individual body is different in terms of size, shape, and capability. Everyone uses different tools and movements and sits, stands, and moves in different positions in the course of a day. So any effort to make your workplace really ergonomic, to adapt jobs to people and not force people to fit their jobs, must involve every single person.

Problems can't be identified and effective solutions can't be developed without you. You won't know about symptoms that signal possible injuries unless you tune into what your body is telling you and report it.

Once you're aware that you're having problems with a particular tool, task, or position, your employer will work with you to identify exactly what's causing the strain and pain. Then he or she will do what they can to remove or limit the risks. That may include one or more actions, from rearranging your workstation or changing the tools you use to helping you find a new position in which to perform certain tasks. It may involve rotating from one task to another to reduce the strain. In some cases, it may even be necessary to temporarily place you in a different job until the body part that's hurting you has time to heal.

If you ignore symptoms for too long, you may eventually be unable to perform your current job. You may have

to permanently transfer jobs, undergo physical therapy, or even have surgery. In the very worst cases, you may develop such a major, and painful, disability that you're unable to work.

Don't expect to be a worst-case scenario. Your employer recognizes the importance of ergonomics and is making every effort to make sure that you do too. So pay attention to how your body feels when you're working. Try to identify what causes pain, numbness, or other symptoms. Work with your supervisor to make sure your workplace is free of ergonomic hazards.

Suggested Discussion Questions –

1. What is ergonomics?
2. What are some of the causes of ergonomically related injuries?
3. What are cumulative trauma disorders?
4. What types of cumulative trauma disorder symptoms should you be aware of and report?
5. What are examples of engineering controls that can reduce the risk of ergonomically related injuries?
6. What are the symptoms of problems related to vibration?
7. What types of things can you do at your workstation to make it more ergonomic?
8. What types of positions should you use—or avoid—to prevent ergonomic injuries?
9. What should you look for—and avoid—when selecting tools?
10. Are there any other questions?

Personal Ergonomics Checklist

Cumulative trauma disorders (CTDs) –

- Develop over a long period of time
- Affect nerves, tendons, tendon sheaths, and muscles
- Can be caused by repetitive motion, forceful exertion, vibration, and awkward positions or movements
- Let your supervisor know immediately if you experience:
  - Pain or achiness
  - Numbness or tingling
  - Stiffness
  - Burning
  - Swelling
  - Weakness

Rynaud's syndrome, or white finger –

- Is caused by prolonged exposure to vibration
- Be alert for:
  - Tingling
  - Numbness
  - Pain
  - Fingers turning white and losing feeling
  - Loss of finger dexterity

Risk factors –

- For cumulative trauma disorders of the arm and hand include:
  - Repetitive activities
  - Forceful exertions
  - Staying in the same position for an extended period of time
  - Awkward body postures
  - Continued physical contact between hand or arms and a work surface or surface edge
  - Excessive power tool vibration
  - Hand tools that either don't fit the job or the hand
- For back injury include:
  - Bending continually from the waist
  - Lifting from below the knees or above the shoulders
  - Twisting at the waist
  - Lifting or moving objects that are too heavy or awkward
  - Sitting for long periods of time, especially with poor posture

A good ergonomics program includes –

- Worksite analysis
- Hazard prevention and control
- Medical management
- Training and education

To prevent injuries –

- Modify the design of the workstation.
- Redesign the work method.
- Redesign tools.
- Schedule more rest pauses.
- Rotate tasks.
- Use mechanical equipment rather than manual when possible.
- Keep your elbows down on the work surface instead of leaning on the elbows.
- Work with your palms down.
- Work with your wrists straight, not bent.
- Shift positions every so often; don't sit or stand for too long at a stretch.
- Perform tasks with two hands rather than one when possible.
- Grip objects with your whole hand and your fingers, a power grip, in order to distribute the force over a larger area of your hand.
- Try to avoid applying pressure to a tool with the center of your palm; that spot is much weaker than the parts of the hand padded with more muscle.

Tool Use –

- Select a tool that fits the job.
- Use a power tool rather than a hand tool when possible.
- Use the lightest available tool for the job.
- Select a tool with:
  - Padded handles
  - Textured grips
  - Triggers that are operated by more than one finger
  - Tools that can be supported by two hands or an overhead suspension system

Back Safety –

- Avoid lifting; whenever possible, use material handling systems.
- Don't try to lift objects that are too heavy for you or whose size and shape are too awkward to allow a good grip.
- Don't twist while lifting or carrying a load, that's one of the fastest routes to back injury.

To Prevent Vibration Injuries –

- Operate tools at the lowest speed possible without lengthening the time it takes to do the job.
- Keep tools well maintained.
- Hold tools as loosely as safety permits.
- Wear gloves designed to protect against vibration.
- Use offset or spring-loaded handles or shock-absorbing exhaust mechanisms to reduce vibration.
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